RESEARCH IN B.C. ECOLOGICAL RESERVES

AN UPDATE ON THE NOTES PRESENTED AT THE MEETING OF

THE CANADIAN COUNCIL ON ECOLOGICAL AREAS

Charlottetown, Prince Edward Island, August 19-21, 1988

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RESEARCH IN B.C. ECOLOGICAL RESERVES

Statistics on the amount and type of research taking place in B.C. ecological reserves were compiled in a very rough manner to provide input to a Workshop on Research in Natural Areas presented at a meeting of the Canadian Council on Ecological Areas (CCEA) in Charlottetown, Prince Edward Island, from August 19 to 21, 1988. These data have now been compiled in a more thorough manner; as expected, the numbers recorded are greater than initially compiled. However our analysis is still superficial in that it does not differentiate between projects requiring a few hours or days of work, and those taking weeks of data gathering each year. We still believe though that the statistics compiled are a good indicator of the gross research trends observed for the B.C. Ecological Reserves Program. We think that many reports are still missing and feel that our statistics probably under-estimate the level of research activities taking place in B.C. ecological reserves.

A. WHO IS DOING WHAT IN TERMS OF RESEARCH IN B.C. ECOLOGICAL RESERVES

Three types of research activities have taken place in B.C. ecological reserves since the start of the Program: **inventory** (a list of species, features, etc.), **census** (numbers are counted), and **basic research**. In total 351 inventories (including IBP surveys) and 90 census have been conducted in B.C. reserves since 1968 (App. A). These range from a few hours casual observations to 15-year annual census. In total, 139 basic research projects were conducted, varying from an Honours student thesis to a 10-year+ investigation of ecological phenomena.

1. Inventories

. we estimate that 351 inventories were carried out in B.C. ecological reserves since 1968 (App.A).

. basic inventories were conducted in all but one of the reserves as they were the site of an International Biological Program survey prior to the onset of the B.C. Ecological Reserves Program itself in 1971. These surveys were mostly conducted by university researchers.

. Ecological Reserves (E.R.) staff do not generally conduct basic inventories. When they do so, it is usually in conjunction with work required to deal with management problems. One to four inventories may be conducted each year in proposed reserves. These inventories take the form of plant lists, description of plant communities, list of fauna observed, etc.

. naturalists and volunteer wardens report on their observations of plants and animals in existing reserves. These observations are casual and are not reported in a consistent fashion.

. researchers from various museums (mainly the B.C.Museum) have conducted inventory surveys in existing reserves. These projects are few in numbers and generally have a narrow scope.

. many inventories were conducted by Honours students from the Universities of B.C. and Victoria in 1974 and 1975 in quite a few reserves close to these universities. Such surveys have not been conducted since. Now, research activities by college or university students are few and usually consist of a small research project rather than inventory work.

. a few surveys (generally of a casual nature) have been conducted by commercial operators, in conjunction with their permitted visit (with clients) to view the flora and/or fauna of specific reserves. This type of activity has been almost exclusively restricted to seabird reserves, as a permit is required to enter these.

. geological mapping has been conducted in a few reserves by the Geological Survey of Canada. Their activities are however incidental to the presence of the ecological reserves. GSC conduct their surveys in these locations because it is where they want to work, not because they are ecological reserves.

. a few inventories have been conducted in specific reserves, usually prior to their establishment, by other government agencies (such as B.C. Parks or Wildlife Branch), as they too may have had some interest in protecting these areas.

Good basic inventories are still lacking for many of the B.C. ecological reserves as budgets are usually unavailable to most researchers to conduct such surveys. E.R. staff simply lack the time and resources to undertake such work, unless they are conducted in conjunction with some management problem.

Very few publications arise from this type of activities. The majority of the inventory surveys conducted result in the production of manuscript reports, often hand-written, which are usually filed with the E.R. Program.

2. Census/Monitoring

. we estimate that 90 census were carried out in the B.C. reserves since the onset of the Program.

. E.R. staff monitor vegetation in a few reserves, usually in association with the presence of a management problem such as grazing by feral or domestic animals, recreational use, etc.

. a few rare species (eg. the phantom orchid, the V.I. marmot, the sea otter) have been monitored by volunteer wardens or other naturalists, by researchers or government agencies such as the Wildlife Branch or the federal Dept. of Fisheries and Oceans, as they also have an interest in these species.

. annual surveys of the oak leaf looper (an insect) have been conducted by the federal Ministry of Forests in one reserve.

. volunteer wardens have helped monitor the well-being of a given plant population (eg. the adder's tongue fern), or the recovery of vegetation after exclosure from grazing through the erection of a fence by establishing a periodic photographic record. However as a rule, wardens and other naturalists lack the training or desire to conduct census surveys.

. researchers from universities and colleges conduct few census in our reserves. If they do, it is usually part of a graduate program thesis. Exceptions are the annual census of marine life by the students of the L.B. Pearson College in the Race Rocks reserve, and the annual marine surveys conducted in the Satellite Channel reserve by a researcher from the University of Victoria. In both cases, the proximity of these reserves seem to be the drawing card. In the Satellite Channel reserve, surveys started prior to the establishment of the reserve.

. by far the largest number of census have been conducted in the seabird reserves. Such surveys were initiallly undertaken by the B.C. Museum, but during the last few years have been funded almost exclusively by the Canadian Wildlife Service.

Good census are lacking for the majority of our reserves. Funding is generally lacking for this type of work. E.R. staff do not as as rule monitor reserves unless such work is associated with an obvious threat to the resources being protected.

Few publications are produced as a result of census work. Census data are commonly kept in a manuscript form, and results are published in a few technical papers often at a few years' intervals.

3. Basic Research

. 139 research projects were undertaken in B.C. ecological reserves since the onset of the Program.

. no research projects have been undertaken by E.R. staff as it is not seen as part of their mandate.

. a few research projects have been undertaken by provincial and federal government agencies. The B.C. Ministry of Forests has located growth and yield plots in many reserves. A graduate thesis may be completed by Geological Survey of Canada staff in association with mapping of an area that includes a reserve. Killer whale studies by the Canada Dept. of Fisheries and Oceans commonly revolve around the Robson Bight reserve. The Canadian Wildlife Service conducts studies of seabird ecology in a few reserves. The majority of the research projects undertaken by government agencies are long-term studies.

. with a few exceptions, researchers from B.C. universities are responsible for the majority of the research projects undertaken in our reserves since the inception of the program.

. all basic research has taken place in 40 of the existing 120 reserves, with only 13 of these reserves accounting for 72 percent (100 out of 139) of all research projects (App. A). These 13 reserves are usually "special", protecting seabird colonies, rare species such as the sea otter or Vancouver Island marmot, or killer whales. For the terrestrial reserves, research is often focused around lakes; most research is concerned with insects or other fauna. Aside from the Growth and Yield plots located by the Ministry of Forests, little work is carried out on the vegetation of these reserves.

. in 1985, 1986, 1987 and 1988 respectively, research projects (including census/monitoring) were numbered at 31, 35, 40 and 48 in B.C. reserves (App. B). These numbers should increase as the existence of our Program is better publicized and as researchers realize the value of these areas for long-term and short-term studies as well.

. Between 1985 and 1988, roughly 50 percent of the research projects taking place each year were long-term (App. B).

Most of the publications resulting from work conducted in our reserves are related to basic research. When manuscript reports are produced, it is often as a draft of journal publications.

B. PUBLICATIONS

At least 432 **manuscripts** and 240 **publications** have been produced in relation to research projects conducted in B.C. ecological reserves since the inception of the Program (App. C). Seventy percent of the publications are related to only 9 reserves, since these have attracted the majority of the researchers.

In 1987 alone, at least 60+ new titles were added to our list of reports and publications (App. D).

C. OTHER STATISTICS

. 32 reserves (i.e. 27% of all reserves) were never studied after the IBP survey conducted prior to their establishment (App. A). Most of these reserves are either remote or are difficult of access.

. 48 reserves (i.e. 40% of all reserves) have been further inventoried and/or monitored after their establishment (App.A). In all, 38 percent of all census/inventories conducted took place in these reserves.

. 40 reserves (33 percent), got most of the attention, with 55 percent of all census/inventories and all, 100 percent, of the basic research projects being conducted there (App. A).

. in total, basic research and/or census/monitoring activities have taken place in 88 of our 120 reserves (73 % of all reserves) after their initial IBP survey. Given the remote location of many reserves and/or their recent establishment, we feel this is not a bad record of activity.

D. CONCLUSIONS

The B.C. Ecological Reserves Program is quite productive in terms of research activities. For example in 1987, 40 research projects of varying magnitude, and at least 60 publications were associated with the B.C. reserves. Since the inception of the Program, close to 600 different research projects have taken place in these reserves and almost 700 reports and publications were produced. However, more extensive inventory and monitoring are grossly lacking in many reserves. Also, basic research needs to be encouraged in more reserves as so far less than 10% of the reserves have received the majority of all research efforts. Finally, the scope of research users needs to be widened as to date the bulk of the research is being conducted by universities.

APPENDIX A

Number of Census, Inventories* and Basic Research Projects in B.C. Ecological Reserves, 1968** - 1988

E.R. #	NUMBER OF Census	Inventories	research Projects	E.R. #	NUMBER OF Census	Inventories	Research Projects
1	7	5	10	41	-	1	-
2	-	3	1	42	-	2	-
3	-	2	-	43	-	3	1
4	-	4	-	44	6	2	4
5	-	3	-	45	5	6	4
6	-	3	-	46	-	1	-
7	-	2	1	47	2	1	-
8	-	2	-	48	-	4	-
9	-	4	-	49	-	2	-
10	-	4	1	50	-	2	-
11	2	2	2	51	-	3	-
12	2	2	2	52	-	4	11
13	3	4	10	53	1	1	-
14	4	1	-	54	-	2	-
15	-	6	1	55	-	5	-
16	-	7	-	56	-	1	-
17	4	2	-	57	-	1	-
18	4	2	-	58	-	3	-
19	-	2	-	59	-	1	-
20	-	5	-	60	-	2	-
21	-	4	1	61	-	3	-
22	-	3	-	62	-	1	-
23	2	1	1	63	-	1	-
24	2	5	7	64	-	2	-
25	-	3	2	65	-	4	-
26	-	3	-	66	-	5	2
27	-	2	-	67	12	2	2
28	-	3	-	68	-	3	6
29	-	2	1	69	-	4	-
30	-	2	1	70	-	1	-
31	-	1	-	71	-	1	-
32	-	1	-	72	-	1	-
33	-	3	-	73	-	1	-
34	-	2	1	74	-	10	6
35	1	5	11	75	-	1	1
36	-	1	-	76	-	2	-
37	-	7	1	77	-	1	3
38	-	1	-	78	-	1	-
39	-	1	-	79	-	1	-
40	-	2	-	80	-	1	-

E.R. #	Census	NUMBER OF Inventories	Research Projects	E.R. #	Census	NUMBER OF Inventories	Research Projects
81	-	1	1				
82	-	2	-				
83	-	4	-				
84	-	1	-				
85	-	1	-				
86	-	1	-				
87	-	1	-				
88	-	7	-				
89	-	1	-				
90	-	3	-				
91	-	1	-				
92	-	2	-				
93	1	3	-				
94	3	7	1				
95	2	4	3				
96	2	4	2				
97	2	14	7				
98	-	3	1				
99	-	3	-				
100	1	11	-				
101	-	4	-				
102	-	1	-				
103	2	2	-				
104	-	3	-				
105	-	4	-				
106	-	1	-				
107	-	1	-				
108	-	3	-				
109	7	7	4				
110	-	1	-				
111	1	7	15				
112	-	4	1				
113	-	1	-				
114	-	1	1				
115	-	1	-				
116	-	-	1				
117	11	2	5				
118	-	1	3				
119	-	1	-				
120	1	1	-				
	90	351	139				

* Including IBP Surveys
** Start of International Biological Program in B.C.

APPENDIX B

LISTS OF RESEARCH PROJECTS

CONDUCTED IN B.C. ECOLOGICAL RESERVES

1985 - 1988

RESEARCH PROJECTS CONDUCTED IN B.C. ECOLOGICAL RESERVES - 1985

3-9-4
19 March 1986

Reserve or Proposal	On-going Projects	Researcher	Project No.
	- MRM on management of Ecological Reserves	Ms. K. Kenneth, Simon Fraser U.	1
1. Cleland Island	- Seabird survey	Canadian Wildlife Service	2 *
13. Anne Vallee (Triangle Island)	- Seabird surveys	Canadian Wildlife Service	3 *
24. Baeria Rocks	- Survey of marine invertebrates	Mr. A. Lamb, B. Hanby Sport Fishing Adv. Board	4
25. Dewdney and Glide Islands	- Vegetation surveys	Dr. H. Roemer, Ecological Reserves Staff	5
30. Vance Creek	- Forestry plots	Ministry Forests	6 *
37. Mt. Maxwell	- Oak leaf looper surveys	Canada Dpt. Forests	7 *
	- Lichens as pollution indicators (M.Sc.)	Mr. M. Ryan, U. Of Victoria	8
43. Mt. Griffin	- Ecological survey and mapping	Mr. M.E. Martin, N. Okanagan Nat.	9
44. East Copper/Jeffrey/ Rankine Islands	- Seabird surveys	Canadian Wildlife Services	10 *
45. V. Krajina	- Distribution of stickleback genetic types	Dr. T. Reimchen, U. Alberta	11 *
52. Drizzle Lake	- Distribution of stickleback genetic types	Dr. T. Reimchen, U. Alberta	12 *
	- Red-throated loon behaviour	Ms. S. Douglas, U. Alberta	13 *
68. Gladys Lake	- Predatory-prey relationships	Mr. L. Basset, Spatsizi Ass. for Biological Research	14
77. Campbell-Brown	- Rattlesnake biology (M.Sc.)	Mr. M. Macartney, U. of Victoria	15

RESEARCH PROJECTS CONDUCTED IN B.C. ECOLOGICAL RESERVES - 1985

3-9-4
19 March 1986

Reserve or Proposal	On-going Projects	Researcher	Project No.
97. Race Rocks	- Marine invertebrate surveys	L.B. Pearson College	16 *
	- Whale and sea mammal monitoring	Int. Cetacean Watch Society	17 *
109. Checleset Bay	- Sea otter surveys	Dpt. Fisheries & Oceans	18
111. Robson Bight	- Orca Population surveys	Dr. M. Bigg, J. Ford, Fisheries and Oceans	19 *
	- Evolutionary processes in Orca (Ph.D.)	Mr. D. Bain, U. Calif.	20
	- Social structure in killer whales	Mr. J. Jacobsen, Calif.	21 *
	- Distribution and behaviour of killer whales	Ms. A. Morton, Lore Quest	22 *
	- Filming of killer whales	Mr. J. Foot, Survival Anglia	23
	- Management plan for Robson Bight	Dr. J. Darling, West Coast Whale Research Foundation	24
	- Effect of boats on Orca	Mr. D. Brigg, U. Calif.	25
	- Survey of whale-watching activities (Ph.D.)	Mr. D. Duffus, U. of Victoria	26
	- Monitoring of Orca in Johnstone Strait	Dr. P. Spong, Orcalab	27 *
114. Williams Cr.	- Forestry plots	Dr. J. Pojar, Min. Forests	28 *
Haley Lake (E.R.P. 237)	- Population surveys, habitat selection by Vancouver Island marmot	Fund administered by V.I. marmot Liaison Com.	29 *
Mahoney Lake (E.R.P. 36)	- Limnological surveys	Dr. T. Northcote, U.B.C.	30 *
Westwick Lake Extension	- Study of eared grebe colony (M.Sc.)	Mr. A. Breault, U.B.C.	31

* Long-term study

RESEARCH PROJECTS CONDUCTED IN B.C. ECOLOGICAL RESERVES - 1986

File: 3-9-4
25 Sept. 1986

Reserve or Proposal	On-going Projects	Researcher	Project No.
	- MRM on management of ecological reserves	Ms. K. Kenneth, Simon Fraser University	1
1. Cleland Island	- Rhinoceros auklets population studies	Canadian Wildlife Service	2 *
	- Seabird foraging behavior	Dr. A. Burger, Bamfield Marine Station	3
13. Anne Vallee (Triangle Island)	- Growth study of rhinoceros auklet populations	Canadian Wildlife Service	4 *
	- Seabird foraging behavior	Dr. A. Burger, Bamfield Marine Station	3
	- M.Sc. on morphological and/or behavioural differences in field mice populations	Mr. L. Marinelli, University of Western Ontario	5
24. Baeria Rocks	- Undergraduate thesis on impact of seabird guano on intertidal biota.	Ms. E. Kreks, Queen's University, Kingston	6
	- Seabird foraging behavior	Dr. A. Burger, Bamfield Marine Station	3
37. Mount Maxwell	- Growth and Yield Forestry plots	B.C. Ministry of Forests	7 *
44. East Copper/Jeffrey/ Rankine Islands	- Seabird population surveys	Canadian Wildlife Service	8 *
45. V.J. Krajina	- Distribution of stickleback genetic types	Dr. T. Reimchen, University of Alberta	9 *
52. Drizzle Lake	- Ph.D. on behavior and biochemistry of stickleback populations	Ms. M. Hall, University of Michigan	10

RESEARCH PROJECTS CONDUCTED IN B.C. ECOLOGICAL RESERVES - 1986

3-9-4
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Reserve or Proposal	On-going Projects	Researcher	Project No.
61. Upper Shuswap River	- Inventory and collection of plant and spider species.	Mr. M. Martin, Volunteer Warden	11
65. Chasm	- Inventory and collection of plant species	Ms. I. Voyer, Volunteer Warden	12
68. Gladys Lake	- Soil inventory and fossil collection	Dr. H. Gabrielse, Geological Survey of Canada	13
77. Campbell-Brown	- Relocation study of rattlesnake population	Dr. P. Gregory, University of Victoria	14
88. Skwaha Mountain	- Inventory and collection of plant species	Ms. E. Nykyfork, Volunteer Warden	15
94. Oak Bay Islands	- Seagull population survey on Great Chain Island	Dr. W. Campbell and Mr. J. Cooper, B.C. Provincial Museum	16
97. Race Rocks	- Vocalization recording and behavioural observations of Orca whales	Mr. R. Baird, International Cetacean Watch Society	18
	- Marine Invertebrate surveys	L.B. Pearson College	19 *
100. Haine's Lease	- Taxonomic study of orbatid mite populations	Dr. V. Behan-Pelletier, Agriculture Canada, Ottawa	20
	- Taxonomic study of insect populations	Dr. R. Cannings, B.C. Provincial Museum	21

RESEARCH PROJECTS CONDUCTED IN B.C. ECOLOGICAL RESERVES - 1986

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Reserve or Proposal	On-going Projects	Researcher	Project No.
111. Robson Bight	- Orca population surveys	Dr. M. Bigg, Fisheries & Ocean, Nanaimo	22 *
	- Ph.D. thesis on evolutionary processes in Orca whale populations	Mr. D. Bain, University of California	23
	- Management guidelines for the Robson Bight Ecological Reserve	Dr. J. Darling, Westcoast Whale Research Foundation	24
	- Ph.D. on whale-watching activities	Mr. D. Duffus, University of Victoria	25
	- Film documentation of Orca whale behavior	Mr. J. Foot, Survival Anglia Ltd.	26
	- Social structure in populations of Orca whales	Mr. J. Jacobsen, California	27 *
	- Film documentation of Orca whale behavior	Mr. H. Minakushi, Keihonsha Publishers, Japan	28
	- Distribution and behavior of transient Orca whales	Ms. A. Morton, Lore Quest	29 *
	- Hydrophone recording of Orca whale vocalizations	Dr. P. Spong, OrcaLab	30 *
	- MRM thesis on the impact of research and filming activities in Robson Bight	Ms. R. Taylor, Simon Fraser University	31
	- Reciprocal altruistic behavior in Orca whale populations	Ms. J. Waite, University of California	32

RESEARCH PROJECTS CONDUCTED IN B.C. ECOLOGICAL RESERVES - 1986

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Reserve or Proposal	On-going Projects	Researcher	Project No.
Haley Lake (ERP 237)	- Population surveys, and habitat selection by Vancouver Island Marmot	B.C. Wildlife Branch, Nanaimo	33 *
Mahoney Lake (ERP 369)	- Limnological surveys	Dr. T. Northcote, U. of B.C.	34 *
Westwick Lake Extension (ER 35)	- M.Sc. population study of eared grebe colony	Mr. A. Breault, U. of B.C.	35

* Long-term studies

RESEARCH PROJECTS CONDUCTED IN B.C. ECOLOGICAL RESERVES - 1987

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Reserve or Proposal	On-going Projects	Researcher	Project No.
-	- M.R.M. on management of Ecological Reserves Completed	Ms. K. Kenneth, Simon Fraser U.	1
1. Cleland Island	- Seabird foraging behaviour	Dr. A. Burger, Bamfield Marine Stn	2
11. Sartine Island	- Seabird surveys	Canadian Wildlife Service	3 *
12. Beresford Island	- Seabird surveys	Canadian Wildlife Service	4 *
13. Anne Vallee (Triangle Island)	- Seabird surveys	Canadian Wildlife Service	5 *
	- Seabird foraging behaviour	Dr. A. Burger, Bamfield Marine Stn	6
20. Columbia Lake	- Plant identification	Ms. A. Coulter, Warden	7
21. Skagit River Forest	- Growth and yield plots	B.C. Ministry of Forests	8 *
24. Baeria Rocks	- Seabird foraging behaviour	Dr. A. Burger, Bamfield Marine Stn	9
30. Vance Creek	- Growth and yield plots	B.C. Ministry Forests	10 *
37. Mt. Maxwell	- Oak leaf looper surveys	Canada Dpt. Forest	11 *
	- M.Sc. on lichens and mosses	Mr. M. Ryan, U. of Victoria	12
49. Kingfisher Creek	- Biological survey	Mr. M. Martin, Naturalist	13
52. Drizzle Lake	- Biology of three-spine stickleback	Dr. T. Reimchen, U. of Alberta	14 *
	- Biology of red-throated loon	Ms. S. Douglas, U. of Alberta	15 *
68. Gladys Lake	- Geological mapping	Dr. A. Evinchick, Geological Survey of Canada	16
	- Ph.D. on volanic and sedimentary rocks of Spatsizi plateau	Mr. D. Thorkelson, Carleton Univ.	17

RESEARCH PROJECTS CONDUCTED IN B.C. ECOLOGICAL RESERVES - 1987

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Reserve or Proposal	On-going Projects	Researcher	Project No.
75. Clanninick Creek	- Growth and yield plots	B.C. Ministry of Forests	18 *
77. Campbell-Brown	- Rattlesnake biology	Dr. P. Gregory, U. of Victoria	19 *
81. Morice River	- Growth and yield plots	Dr. J. Pojar, B.C. Min. of Forests	20 *
94. Oak Bay Islands	- Marine mammal monitoring	Int. Cetacean Watch Society	21 *
97. Race Rocks	- Whale and marine mammal monitoring	Int. Cetacean Watch Society	22 *
	- Marine invertebrate surveys	L.B. Pearson College	23 *
	- Hydroid taxonomy	Dr. A. Brinckmann - Voss, Royal Ontario Museum	24
100. Hayne's Lease	- Sawfly taxonomy	Dr. R. Cannings, B.C. Provincial Museum	25
109. Checleset Bay	- Ph.D. on sea otter population	Ms. J. Watson, U. of California	26
111. Robson Bight	- Orca population surveys	Dr. M. Bigg, Fisheries and Oceans	27 *
	- M.Sc. on alloparental care in Orca	Ms. J. Waite, U. of California	28
	- M.Sc. on social structure in killer whales	Mr. J. Jacobsen, Humboldt St. U., Ca.	29 * 30 *
	- Distribution and behaviour of transient Orcas	Ms. A. Morton, Lore Quest	31
	- Orca behavior at the rubbing beaches	Mr. D. Brigg, U. of California	32
	- Ph.D. on whale-watching activities	Mr. D. Duffus, U. of Victoria	33 *
	- Monitoring of Orca in Johnstone Strait	Dr. P. Spong, Orcalab	34
	- M.Sc. on sex ratios in Orcas	Ms. N. Rose, U. of California	35
	- M.R.M. on use of marine reserve by researchers and photographers.	Ms. R. Taylor, Simon Fraser U.	
112. Mount Tzuhalem	- M.Sc. on mosses and lichens	Mr. M. Ryan, U. of Victoria	12

RESEARCH PROJECTS CONDUCTED IN B.C. ECOLOGICAL RESERVES - 1987

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Reserve or Proposal	On-going Projects	Researcher	Project No.
114. Williams Creek	- Growth and yield plots	Dr. J. Pojar, Min. Forests	36 *
117. Haley Lake	- M.Sc. on population genetics in Vancouver Island marmot	Mr. A. Bryant, U. of Calgary	37
118. Nimpkish River	- Growth and yield plots	B.C. Ministry of Forests	38 *
	- Short-term study on wind firmness and hydrological stability	B.C. Ministry of Environment & Parks	39
Mahoney Lake (E.R.P. 36)	- Limnological surveys	Dr. T. Northcote, U.B.C.	40 *

* Long-term study

RESEARCH PROJECTS CONDUCTED IN B.C. ECOLOGICAL RESERVES - 1988

3-9-4
21 Oct 1988

Reserve or Proposal	On-going Projects	Researcher	Project No.
1. Cleland Island	- Rhinoceros auklet population studies	Ms. M. Lemon, Canadian Wildlife Service (C.W.S.)	1 *
	- Seabird foraging behaviour	Dr. A. Burger, Bamfield Marine Station	2
5. Lily Pad Lake	- Mountain pine beetle survey	B.C. Ministry of Forests and Canada Dept. of Forests	3
8. Clayhurst	- Plant communities description	R. Kabzems, Plant ecologist and Volunteer Warden	4
14. Solander Island	- Seabird population survey	Ms. M. Lemon, C.W.S.	5 *
21. Skagit River Forest	- Forest Growth and Yield surveys **	B.C. Ministry of Forests	6 *
23. Moore/McKenney/Whitmore Islands	- Seabird population survey	Ms. M. Lemon, C.W.S.	7 *
24. Baerid Rocks	- Seabird foraging behaviour	Dr. A. Burger, Bamfield Marine Station	8
28. Ambrose Lake	- Flora and fauna inventory	Pender Harbour and District Wildlife Societies	9
30. Vance Creek	- Ecological inventory	Mr. M. Martin, North Okanagan Naturalists	10
	- Forest Growth and Yield surveys**	B.C. Ministry of Forests	11 *
37. Mount Maxwell	- Oak leaf looper survey	Canada Dept. of Forests	12 *
45. Vladimir Krajina (Port Chanal)	- Geological mapping	Mr. R. Higgs, Geological Survey of Canada	13

RESEARCH PROJECTS CONDUCTED IN B.C. ECOLOGICAL RESERVES - 1988

3-9-4
21 Oct 1988

Reserve or Proposal	On-going Projects	Researcher	Project No.
52. Drizzle Lake	- Biology and three-spine stickleback	Dr. T. Reimchen, U. of Alberta	14 *
	- Biology of red-throated loon	Ms. S. Douglas, U. of Alberta	15 *
	- Inland flight activity of marbled murrelet	Drrs. Eisenhawer and Reimchen, U. of Alberta	16
	- Fish distribution in Q.C. Islands	Drrs. Northcote, Peden, U. of B.C., and Reichmen, U. of Alberta	17
53. Narcosli Lake	- Waterfowl Census	Mr. B. Nuttall, Ducks Unlimited	18
55. Cardiff Mountain	- Lichen inventory	Dr. I. Brodo, Nat. Museum of Canada	19
68. Gladys Lake	- Geological mapping	Dr. C. Evenchick, Geological Survey of Canada	20
	- Permanent vegetation plots	Dr. H. Roemer, Ecological Reserves Program	21 *
74. U.B.C. Endowment Lands	- Archeological inventory	Dr. L. Ham, Consultant	22
75. Clanninick Creek	- Forest Growth and Yield survey **	B.C. Ministry of Forests	23 *
81. Morice River	- Forest Growth and Yield surveys **	B.C. Ministry of Forests	24 *
88. Skwaha Lake	- Permanent vegetation plots	Dr. H. Roemer, Ecological Reserves Program	25 *
92. Skihist	- Archeological Observations	Mrs. I. Voyer, Volunteer Warden	26
94. Oak Bay Islands	- Marine mammal monitoring	Mr. R. Baird and Ms. P. Stacey, Researchers	27 *

RESEARCH PROJECTS CONDUCTED IN B.C. ECOLOGICAL RESERVES - 1988

3-9-4
21 Oct 1988

Reserve or Proposal	On-going Projects	Researcher	Project No.
97. Race Rocks	- Marine mammal monitoring	Mr. R. Baird and Ms. P. Stacey, Researchers	28 *
	- Marine invertebrate monitoring	Mr. G. Fletcher, L.B. Pearson College	29 *
	- Hydroids and bryozoans taxonomy	Dr. A. Brinkmann Voss, Royal Ontario Museum	30
100. Hayne's Lease	- Sawfly taxonomy	Dr. R. Canning, Royal B.C. Museum	31
103. Byers/Conroy/Harvey/ Sinnett Islands	- Seabird population survey	Ms. M. Lemon, C.W.S.	32 *
109. Checleset Bay	- Seabird population survey	Ms. M. Lemon, C.W.S.	33 *
	- Ph.D. on sea otter ecology	Ms. J. Watson, U. of California	34
111. Robson Bight	- Orca population surveys ***	Dr. M. Bigg, Fisheries & Oceans	35 *
	- M.Sc. on social structure in Orca ***	Mr. J. Jacobson, Humboldt St. Univ	36 *
	- Distribution/behaviour of transient Orcas***	Ms. A. Morton, Lore Quest	37 *
	- Ph.D. on whale-watching activities	Mr. D. Duffus, U. of Victoria	38
	- Hydrophone recordings and monitoring of Orca populations ***	Dr. P. Spong, OrcaLab	39 *
	- M.Sc. on sex ratio in Orca ***	Ms. N. Rose, U. of California	40
	- M.Sc. on movement of Orca in relation to salmon migration ***	Ms. L. Nichol, U. of B.C.	41
	- Archeological survey	Mr. M. Eldridge, Consultant	42
112. Mount Tzuhalem	- Insect taxonomy	Dr. R. Cannings, Royal B.C. Museum	43
114. Williams Creek	- Forest Growth and Yield surveys **	B.C. Ministry of Forests	44 *
116. Katherine Tye	- Biogeographical study of the phantom orchid	Ms. R. Klinkenberg, U. of B.C.	45

RESEARCH PROJECTS CONDUCTED IN B.C. ECOLOGICAL RESERVES - 1988

3-9-4
21 Oct 1988

Reserve or Proposal	On-going Projects	Researcher	Project No.
117. Haley Lake	- M.Sc. on population genetics of V.I. marmot	Mr. A. Bryant, U. of Calgary	46
	- V.I. marmot population survey	B.C. Wildlife Branch	47 *
118. Nimpkish River	- Forest Growth and Yield surveys **	B.C. Ministry of Forests	48 *

* Long-term study
** Growth and yield plots are surveyed every 10 years
*** Study goes beyond boundary of reserve

APPENDIX C

Number of Reports and Publications for B.C. Ecological Reserves 1971 - 1988
Preliminary Statistics prepared for CCEA Meeting, August, 1988

ER	NUMBER OF MANUSCRIPTS	NUMBER OF PUBLICATIONS
1	6 (2PhD)	11 (+2)
2	2 (+1)	(+1)
3	2	1
4	6	(+2)
5	3	1 (+1)
6	2	(+1)
7	5 (1MSc)	(+1)
8	1	-
9	3	1
10	4 (+2)	3 (+4)
11	1 (+1)	4 (+2)
12	(+1)	2 (+2)
13	9 (1MSc)(+1)	19 (+8)
14	(+1)	2 (+3)
15	4 (+3)	3
16	5 (+5)	1 (+2)
17	1 (+1)	2
18	(+2)	(+1)
19	1	-
20	1	-
21	4	1
22	2	-
23	2 (1PhD)	(+1)
24	5 (+1)	1 (+3)
25	3 (+1)	1
26	1	-
27	2	(+1)
28	1	-
29	2 (+3)	(+3)
30	1	(+1)
31	1	-
32	1	-
33	2 (+3)	1 (+1)
34	2 (1PhD)(+2)	(+1)
35	8 (4MSc) (2PhD) (+1)	15
36	1	-
37	6 (+4)	4 (+2)
38	1	-
39	1	-
40	1	-
41	1	-
42	2	2 (+1)
43	2 (+1)	(+1)
44	1 (+1)	1 (+3)
45	11	1 (+4)
46	1	-
47	1	-
48	3	1 (+1)
49	2	(+1)
50	1	(+1)
51	1 (+2)	(+1)
52	27 (1PhD, 1MSc)	27
53	1	-
54	1	1
55	1	-
56	1	-
57	2	-
58	1	-
59	1	-
60	1	-
61	2	(+1)
62	1	-
63	1	1
64	1 (+1)	1 (+1)
65	1	-
66	3 (+2)	1
67	3 (+1)	6
68	21 (1MSc)(+1)	20 (+2)
69	1	2
70	1	-
71	1	-
72	1	-
73	1	-
74	12(1PhD,4BSc)	7
75	1	-
76	2	-
77	2	1 (+1)
78	1	-
79	1	-
80	1	-

ER	NUMBER OF MANUSCRIPTS	NUMBER OF PUBLICATIONS
81	1	-
82	1	-
83	1	-
84	1	-
85	1	-
86	1	-
87	1	-
88	2	-
89	1 (+4)	(+1)
90	2	-
91	1	-
92	1	-
93	1 (+1)	(+5)
94	5 (+1)	2 (+1)
95	1 (+2)	1 (+2)
96	1	(+3)
97	12 (+3)	7 (2)
98	1	1
99	2 (+1)	-
100	8 (+1)	3 (+1)
101	1	-
102	1	-
103	2	1
104	1	-
105	1	1
106	1 (+3)	1 (+1)
107	1	-
108	3 (+1)	1 (+1)
109	15 (1PhD)(+1)	12 (+1)
110	1	(+2)
111	94 (1MNRM, 1MSc, 3BSc) (+1)	48 (+1)
112	1	-
113	1	-
114	1	-
115	1	-
116	-	2
117	24 (2MSc)(+1)	14
118	11	2
119	3	-
120	1	(+3)
TOTAL:	432	240
	(9PhD, 12MSc,7BSc)	

ER	NUMBER OF MANUSCRIPTS	NUMBER OF PUBLICATIONS

APPENDIX D
NEW REPORTS AND PUBLICATIONS
FOR BRITISH COLUMBIA ECOLOGICAL RESERVES 1987-88

B.C. ECOLOGICAL RESERVES PROGRAM

B.C. Ecological Reserves Program. 1988. Guide to Ecological Reserves in British Columbia. Ministry of Environment and Parks, Victoria, B.C. 312p. Ref. no.: 73.

Goulet, Louise A. 1988. Research in B.C. Ecological Reserves. Notes presented at the meeting of the Canadian Council on Ecological areas, Charlottetown, Prince Edward Island, August 19-21, 1988. B.C. Ecological Reserves Program, Victoria, B.C. 6 p. & app.

Goulet, Louise A., and R. Norrish. 1988. Guidelines for the preparation and review of ecological reserve background report and management plan. Manuscript report prepared by Ministry of Environment and Parks, Victoria, B.C. 15p. Ref. no.: 77.

Kennett, K.D. 1987 An evaluation of the ecological reserve program in British Columbia. Research report, Master of Natural Resources Management, Simon Fraser University, Natural Resources Management Program Report no.: 45. 88p. Ref. no.: 71.

Pojar, J., and H. Roemer, 1987. Wetland Conservation and ecological reserves in British Columbia. Proceedings Wetlands/Peatlands Symposium, Edmonton, Alberta, August 23-27, 1987. pp 617-624. Ref. no.: 75.

Roemer, H.L., 1988. Endangered, threatened and sensitive plants of British Columbia. Ecological Reserves Program, Ministry of Environment and Parks, Victoria, B.C. 2p. Ref. no.: 2999.

Roemer, H.L., and R.T. Ogilvie, 1983. Additions to the flora of the Queen Charlotte Islands on limestone. Can. J. Bot. 61(10):2577-2580. Ref. no.: 2998.

Roemer, H.L. Pojar, and K.R. Joy, 1988. Protected old-growth forests in coastal British Columbia. Manuscript submitted to Natural Areas Journal. 35p. Ref. no.: 2224.

ANNE VALLEE (TRIANGLE ISLAND) E.R. #13

Vermeer, K. 1984. The diet and food consumption of nestling Cassin's Auklets during summer, and a comparison with other plankton-feeding alcids. Murrelet 65: 65-77. Ref. no.: 13-20.

Vermeer, K. 1985. A five-year summary (1978-1982) of the nestling diet of Cassin's Auklets in British Columbia. Can. Tech. Rep. Hydrogr. and Ocean Sci. No. 56 Ref. no.: 13-22.

Vermeer, K. 1987. Growth and nestling periods of Cassin's Auklets: adaptions of planktivorous auklets to breeding at northern latitudes. Can. Tech. Rep. Hydrogr. and Ocean Sci. No. 93 Ref. no.: 13-24.

Vermeer, K. and K. Devito. 1986. Size, caloric content and association of prey fishes in meals of nestling Rhinoceros Auklets. Murrelet 67:1-9. Ref. no.: 13-23.

Vermeer, K., and S.J. Westrheim. 1984. Fish changes in diets of nestling Rhinoceros Auklets and their implications. In: Nettleship, D.W., G.A. Sanger and P.F. Springer (eds.) Marine birds: their feeding ecology and commercial fisheries relationships. Proc. Pacific Seabird Group Symp., Seattle, WA, 6-8 Jan 1982. Can. Wildl. Serv. Spec. Publ. pp 96-105. Ref. no.: 13-20A.

DEWDNEY AND GLIDE ISLANDS E.R. #25

Reimchen, T.E., and S. Douglas. 1987. Brief notes on a field trip to Dewdney Island (E.R. #25), June 1987. Department of Ecology, University of Alberta, Edmonton. 5p. Ref. no.: 25-2.

Roemer, H.L., and R.T. Ogilvie, in prep. Vegetation and flora of Dewdney Island Ecological Reserve - 1984 survey. Field data and manuscript report, Ecological Reserves Program, Ministry of Environment and Parks, Victoria, B.C. 14p. Ref. no.: 25-3.

KINGFISHER CREEK E.R. #49

Martin, M.E. 1988. Kingfisher Creek Ecological Reserve #49 - Report of 1987 Survey. North Okanagan Naturalists Club, Vernon, B.C. 39p. Ref. no.: 49-1.

DRIZZLE LAKE E.R. #52

Douglas, Sheila D., and T.E. Reimchen. 1988a. Habitat characteristics and population estimate of breeding red-throated loons, Gavia stellata, on the Queen Charlotte Islands, British Columbia. Manuscript report, Dept. of Zoology, University of Alberta, Edmonton, Alberta. 20p. Ref. no.: 52-44.

Douglas, Sheila D., and T.E. Reimchen. 1988b. Reproductive phenology and early survivorship in red-throated loons, Gavia stellata. Manuscript report submitted to Canadian Field-Naturalist. 14p. Ref. no: 52-45.

Eisenhawer, A.E., and T.E. Reimchen. In press. Inland flight activity of Marbled Murrelets on the Queen Charlotte Archipelago. Manuscript submitted to Can. Field-Naturalist. Ref. no.: 52-50.

Hall, M., and T.E. Reimchen. In press. Mitochondrial DNA patterns among endemic stickleback from the Queen Charlotte Islands: a preliminary survey. Submitted to Can. J. Zool. Ref. no.: 52-49.

Northcote, T.M., A.E. Peden, and T.E. Reimchen. In press. Fishes of the costal marine, riverine and lacustrine waters of the Queen Charlotte Islands. International symposium on the Queen Charlotte Islands, University of British Columbia. Ref. No.: 52-48.

Reimchen, T.E. 1988. Inefficient predators and prey injuries in a population of giant stickleback. Can. J. Zool. 66:2036-2044. Ref. No.: 52-46.

Reimchen, T.E. In press. New interpretations for loss of nuptial color in Gasterosteus. Submitted to Evolution. Ref. No.: 52-47.

Reimchen, T.E., and J.S. Nelson. 1987. Habitat and morphological correlates to vertebral number as shown in a teleost, Gasterosteus aculeatus. Copeia 1987 (4):868-874. Ref. no.: 52-43.

GLADYS LAKE E.R. #68

Evenchick, C.A. 1987. Stratigraphy and structure of the northeast margin of the Bowser Basin, Spatsizi map area, north-central British Columbia. In Current Research, Part A Geological Survey of Canada, Paper 37-10: 719-726. Ref. no.: 68-21.

Evenchick, C.A. 1988. Structural style and stratigraphy in northeast Bowser and Sustut Basins, north-central British Columbia. In Current Research, Part E, Geological Survey of Canada, Paper 88 - IE: 91-95. Ref. no.: 68-22.

Thorkelson, D.J. 1988. Jurasic and Triassic volcanic and sedimentary rocks in Spatsizi map area, north-central British Columbia. In Current Research, Part E, Geological Survey of Canada, Paper 88-IE: 43-48. Ref. no.: 68-23.

UBC ENDOWMENT LANDS E.R. #74

Straley, G.B., and R.P. Harrison. 1987 An illustrated flora of the University Endowment Lands. University of British Columbia, Vancouver, B.C. 205p. Ref. no.: 74-9.

CAMPBELL-BROWN (KALAMALKA LAKE) E.R. #77

Macartney, J.M., and Gregory, P.T. 1988. Reproductive biology of female rattlesnakes (Crotalus viridis) in British Columbia. Copeia (1): 47-57. Ref. no.: 77-2.

OAK BAY ISLETS E.R. #94

Baird, R.W., and P.J. Stacey. 1987a. Foraging behavior of transient killer whales. Cetus 7(1): 8. Ref. no.: 94-4.

Baird, R.W., and P.J. Stacey. 1987b. Behavioral ecology of transient killer whales Orcinus orca, around southern Vancouver Island, B.C. Preliminary research summary. Unpublished manuscript, Victoria, B.C. 39p. Ref. no.: 94-5.

Baird, R.W., and P.J. Stacey. 1988. Foraging and feeding behavior of transient killer whales. Whalewatcher, Spring 1988: 11-15. Ref. no.: 94-6.

RACE ROCKS E.R. #97

Baird, R.W. 1988. Can sea lions "see" killer whales? Victoria Naturalist 44.4:9. Ref. no.: 97-15.

Baird, R.W., and P.J. Stacey. 1987. Observations on the reactions of sea lions to killer whales - evidence of "prey" having a "search image" for predators. Manuscript report, Box 6244, Victoria, B.C. 7p. Ref. no.: 97-14.

B.C. Ministry of Parks, 1988. Race Rocks Ecological Reserve. Pamphlet B.C. Parks, Victoria, B.C. Ref. no.: 97-17.

Berg, J.M. 1987. A comparative study of the escape responses of limpets. Extended Biology essay done for International Baccalaureate, Lester B. Pearson College of the Pacific, Victoria, B.C. 35p. Ref. no.: 97-11.

Fredericks, C.L. 1988. A laboratory study on tide pool protists at the Race Rocks Ecological Reserve. Extended essay done for International Baccalaureate, Lester B. Pearson College, Victoria, B.C. 72p. Ref. no.: 97-16.

Walker, B. 1987. Pearson College transect data. Lester B. Pearson College of the Pacific, Victoria, B.C. 11p. Ref. no.: 97-13.

Zahid, M. 1987. Distribution of Anthopleura elegantissima (sea anemone). Extended Biology essay done for International Baccalaureate, Lester B. Pearson College of the Pacific. 51p. Ref. no.: 97-12.

HAYNES LEASE E.R. #100

Cannings, R.A. 1987a. Preliminary (partial) list of Hymenoptera Aculeata of Hayne's Lease Ecological Reserve, Osoyoos. Manuscript report, Royal British Columbia Museum, Victoria, B.C. 4p. Ref. no.: 100-7.

Cannings, R.A. 1987b. The ground mantis, Litaneutria minor (Dictuoptera: Mantidae) in British Columbia. J. Entomol. Soc. British Columbia 84: 64-65. Ref. no.: 100-8.

Dondale, C., and J. Redner. 1988. Haynes Lease Aranae in the Spencer Entomological Museum, U.B.C. determined by authors. Manuscript report, Spencer Entomological Museum, University of British Columbia, Vancouver, B.C. 2p. Ref. no.: 100-9.

CHECLESET BAY E.R. #109

Archipelago Marine Research. 1988. The sea otter in British Columbia, population dynamics and community effects - an unsolicited proposal. Submitted to Unsolicited Proposal Program, Science Procurement Br., Science & Professional Services Directorate, Hull, Quebec. 57p. Ref. no.: 109-21.

Watson, Jane. 1988. The patch dynamics of kelp assemblages in a sea otter dominated system in British Columbia, Ph.D. Research Proposal, University of California, Santa Cruz. Ca. 18p. Ref. no: 109-20.

ROBSON BIGHT E.R. #111

Bigg, M.A., G.M. Ellis, J.K.B. Ford, and K.C. Balcomb. 1987. Killer whales; a study of their identification, genealogy, and natural history in British Columbia and Washington State. Produced by West Coast Whale Research Foundation, Vancouver, British Columbia. Phantom Press and Publishers Inc., Nanaimo, B.C. 79p. Ref. no.: 111-48.

Blood, D.A., I.B. MacAskie, and C.J. Low. 1988. Robson Bight Ecological Reserve - Background report. Prepared by D.A. Blood and Associates, for B.C. Ecological Reserves Program, Ministry of Environment and Parks, Victoria, B.C. 53p. & app. Ref. no.: 111-56.

Briggs, D.A. 1987. Census tables of boat traffic in the Johnstone Strait during the periods July 11 - September 1, 1984 and July 1 - September 1, 1985. University of California at Santa Cruz, Ca. 89p. Ref. no.: 111-42.

Briggs, D.A. 1988. Usage of the rubbing beaches at Robson Bight Ecological Reserve by whales and boats. Report prepared for Ecological Reserves Program, Victoria, B.C., by Briggs, 314 Jessie Street, Santa Cruz, Ca. 48p. Ref. no.: 111-52.

Jacobsen, J. 1988. Phototrix 2 - a photogrammetric method for measuring the distance to an object and the size of that object. Unpublished report, P.O. Box 4492, Arcata, Ca. 8p. Ref. no.: 111-53.

Nature Trust of B.C. 1987. Land acquisition at Robson Bight on northern Vancouver Island, British Columbia. 909-100 Park Royal S., West Vancouver, B.C. Ref. no.: 111-44.

Rose, Naomi A. 1988. Group living in the killer whale: mitigating the costs. A thesis proposal, University of California, Santa Cruz, Ca. 12p. Ref. no.: 111-51.

Smith, Dawn, and Christi Bricknell. 1987. Human influences on Orcinus orca within Johnstone Strait. Research reports for course E.S. 195, Colleges 8 and Cowell College, University California, Santa Cruz, Ca. 31p. Ref. no.: 111-50.

Taylor, Robin E. 1988a. Visitor program at Robson Bight Ecological Reserve, summer 1987. Report prepared for Ecological Reserves Program, Park Programs Branch, Ministry of Environment and Parks, Victoria, B.C. 28p. plus app. and addendum. Ref. no.: 111-49.

Taylor, Robin E. 1988b. The use of a marine mammal reserve by researchers and photographers. Research report for Master of Natural Resource Management, Simon Fraser University, 41p. plus appendices.

HALEY LAKE E.R. #117

Bryant, A. 1987. A year-end report of field activities, May-September, 1987 on genetic variability and minimum viable populations in the Vancouver Island Marmot (Marmota vancouverensis). Faculty of Environmental Design, University of Calgary, Calgary, Alberta. 12p. Ref. no.: 117-29.

NIMPKISH ISLAND E.R. #118

Moore, K. 1987. An assessment of the windfirmness of the Nimpkish Island proposed ecological reserve. Ministry of Environment, Queen Charlotte City. 21p. Ref. no.: 118-6.

Reksten, D.E. 1988. Assessment of channel stability and hydrology of the river reaches adjacent to Nimpkish Island. Hydrology Section, Water Management Branch, B.C. Ministry of Environment and Parks, Victoria, B.C. 6p. Ref. no.: 118-7.

HIPPA ISLAND E.R.P. #23

Vermeer, K., and K. Devito. 1988. The importance of Paracallisoma coecus and mycotiphid fishes to nesting fork-tailed and Leach's storm-petrels in the Queen Charlotte Islands, British Columbia. Journal of Plankton Research 10(1):63-75. Ref. no.: P23-1.

Vermeer, K., K. Devito, and L. Rankin. 1988. Comparison of nesting biology of fork-tailed and Leach's storm-petrels. Colonial Waterbirds 11(1):46-57. Ref. no.:P23-2.

KOOTENAY INLET E.R.P. #25

Highland Energy Systems Ltd., 1986. Proposal to supply electricity to B.C. Hydro, Queen Charlotte Islands. 150p. Ref. no.: P25-1.

KHUTZEYMATEEN RIVER E.R.P. #97

Hammond, H.L. 1988. Summary report of preliminary findings economic and ecological feasibility of forest management in the Khutzeymateen watershed. Prepared for Friends of Ecological Reserve, Victoria, B.C. by Silva Ecosystem Consultants Ltd., R.R.1, Winlaw, B.C.
Ref. no.: P97-11.

BROOKS PENINSULA E.R.P. #241

Roemer, H.L. and A. Banner, in prep. Forest vegetation of the Brooks Peninsula. A chapter of a Brooks Peninsula monograph to be published by Royal British Columbia Museum, Victoria, B.C. 30p.
Ref. no.: P241-2.

STEIN RIVER E.R.P. #253

Jones, T. 1983. Wilderness or logging? Case studies of two conflicts in B.C. Federation of Mountain Clubs of British Columbia, 1200 Hornby Street, Vancouver, B.C. Ref. No.: P253-3.

TAHSISH/KWOIS E.R.P. #363

Goulet, Louise A., and H. Roemer. 1988. A comparative assessment of the Carmanah Creek and Tahsish/Kwois Sitka spruce areas for ecological reserve purposes. B.C. Ecological Reserves Program, Ministry of Parks, Victoria, B.C. 14p. & app. Ref. No.: P363-14.